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GEOGRAPHIC SCHOOL BULLETINS

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Albert W. Stevens

TRADEMARK AND LANDMARK, MOMOTOMBO CARRIES A TORCH FOR NICARAGUA

Volcanoes fencing Nicaragua's Pacific side are supposed to have walled in, with lava ramparts, a bay of the Pacific to form the country's two great lakes. Of the score of firespouters, none is more dramatic than growling Momotombo, on the north shore of Lake Managua across from the capital city, Managua. A violent eruption and earthquake in 1609 wiped out the old Spanish colonial capital of León at its feet; a new León was built farther west. When Managua became the new capital, Momotombo nearly destroyed that also, in 1931. The volcano's infant brother swimming in the lake (left) is Momotombito, "Little Momotombo." Another volcano, Asososca, in its extinct crater cups the mountain lake which is Managua's reservoir. Five cones on the flag symbolize the volcanoes' importance in Nicaragua (Bulletin No. 2).

HOW TEACHERS MAY OBTAIN THE BULLETINS

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New Guinea to Tokyo: Pacific Path of Island Steppingstones

AS armchair strategists scan their maps of the Pacific Ocean war theater, few can resist planning a campaign to invade Japan. They notice that, from American battlefields in New Guinea and the Solomons to Tokyo, there stretches a 3,000-mile sea road with plentiful island steppingstones. Japan uses the islands now as bases, but the United Nations could use them against Japan.

The maze of small but strategic islands resembles—on a map—the outpouring of a giant pepper shaker in the hands of cartographers gone berserk.

Starting the northward march are the neighbors of Guadalcanal in the British Protectorate portion of the Solomons—Malaita, Santa Isabel, Choiseul, and New Georgia, with its notorious Japanese airfield at Munda. In the heart of Melanesia, or "Black Islands," these are large in comparison with their neighbors in Micronesia, or "Little Islands" (map, next page).

Micronesian Islands Secretly Fortified by Japs

The western portion of the Melanesian group, German before the first World War and now mandated to Australia, includes large Bougainville and little Buka, westernmost of the Solomons, the eastern half of New Guinea, and the sweeping arc of the Bismarck Archipelago—New Britain with the enemy base at Rabaul, New Ireland, New Hanover, and the St. Matthias and Admiralty groups.

Just across the Equator to the north lies Micronesia, the middle stage of the "march to Tokyo." The 1,500 islets, mostly of coral formation, are scattered like star dust over a patch of Pacific the size of the United States.

North of their center is Guam; to their west, the Philippines. This region fell rather easily to the U. S. in the Spanish-American War. Uncle Sam held on to the Philippines and Guam, but handed the other islands back to Spain, who sold them to Germany for $4,500,000. The World War Allies entrusted them to Japan.

Marshalls Near Shipping Lanes from Hawaii

Key groups in Japan's mandate are the Carolines, the Marshalls, and the Marianas. Secretly fortified and barred to foreign visitors, some of these islands remained unknown even to seasoned globe-trotters. From such strong bases as those on the Palau and Truk islands, Japan may have launched her attacks on Hawaii, the Philippines, and Melanesia. From Rota and Saipan it was no surprising military coup to overwhelm near-by unfortified Guam.

The Palau group, nearest the Philippines, combines coral and volcanic isles. It has been described as the Japanese Singapore, seat of the Japanese South Seas government, hive of new industry and agriculture, magnificent fleet and air bases.

Yap, to the northeast, in spite of a poor harbor, is a naval station.

Many islets dot the 40-mile lagoon of Truk, where deep water and convenient gaps in the surrounding reef provide a perfect haven for the Japanese fleet.

Ponape, 130 square miles, is the largest island of the Japanese Mandate.

North of the Caroline Islands lie the Marianas, in a curving string that dangles Guam from its southern end. This group points like an arrow to Japan.

Southeast of the Marianas, on the eastern edge of the Japanese Mandate, are the Marshalls—some 32 islands and innumerable reefs, many enclosing broad lagoons. Closest to Honolulu (2,300 miles to its southwest) they may have hidden the springboards for the Pearl Harbor attack. Less than two months later, the U. S. Navy raided Jaluit, Wotje, Maloelap, and Kwajalein in the Marshalls.

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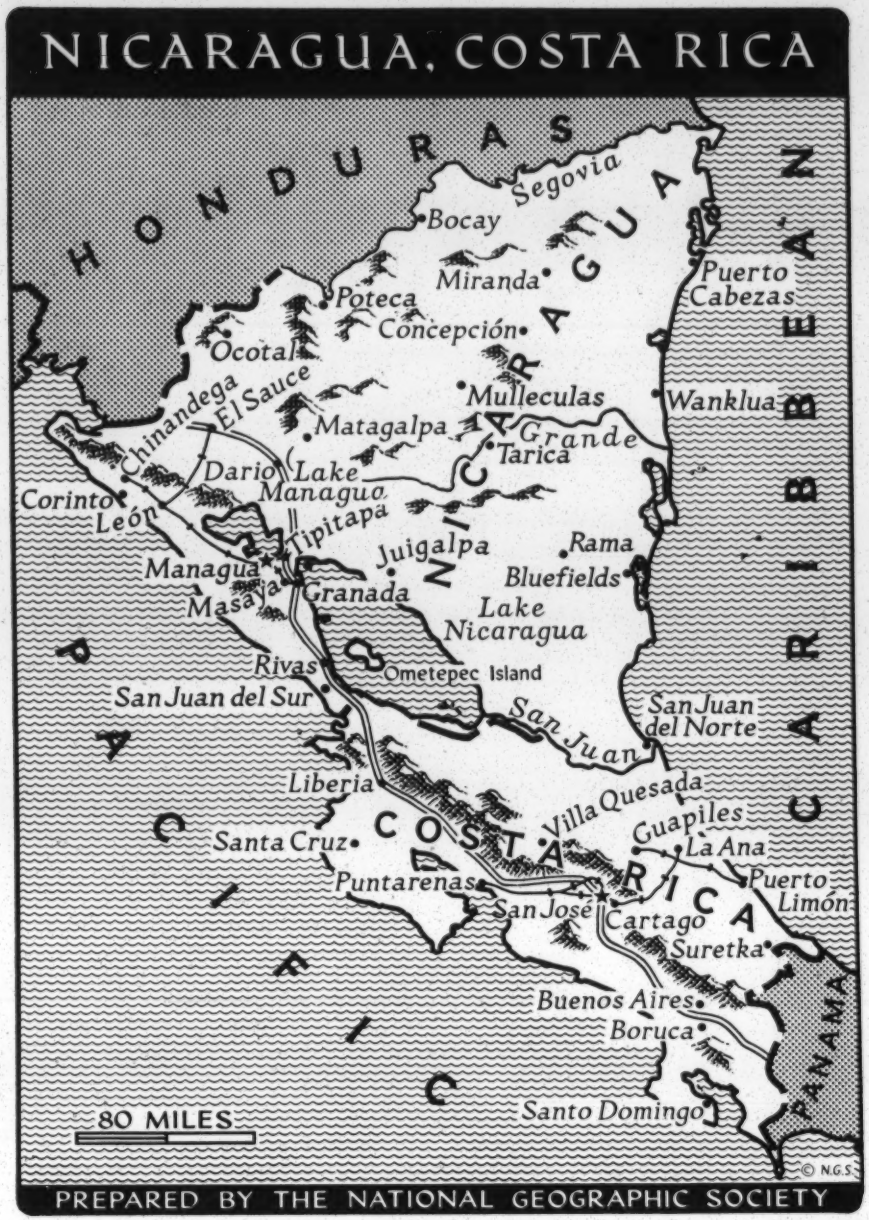

TRIANGULAR NICARAGUA PILES CITIES AND LAKES ON ITS WESTERN SHOULDER

Thinly populated Nicaragua, largest of the Central American republics, carries its two chief cities—Managua and León—and the majority of its 1,300,000 people on its Pacific shoulder. The volcanoes rising in a row like a picket fence between the two big lakes and the ocean have made the soil fertile in this area, and altitude makes the climate pleasant (Bulletin No. 2).

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Nicaragua of the "Great Lakes"

(This is the sixteenth of a series of bulletins, with maps and illustrations, on the republics of Latin America.)

NICARAGUA, set in the middle of "Middle America," is the largest of the six republics that lie between Mexico and the continent of South America. About Alabama's size (51,000 square miles), it has, after Panama, the longest seacoast, some 600 miles on the Caribbean and the Pacific.

Like its neighbors, Nicaragua joined the war against the Axis shortly after the Pearl Harbor attack, and offered sites for U. S. naval and air bases.

Dramatic Volcanic Scenery Around the Two Lakes

In southwest Nicaragua are two "Great Lakes," one of which—Lake Nicaragua—is among the largest in the Americas. Its area is nearly three times that of Rhode Island. It contains several of the country's volcanoes, whose cones rise dramatically against vivid blue sky and water and rich green vegetation.

It was by way of Lake Nicaragua that the projected Nicaragua Canal, to link Pacific and Atlantic, was long planned. Such a canal—to stretch from the Caribbean port of San Juan del Norte (Greytown) along the San Juan River valley, across the lake, and over the narrow land margin to the Pacific—was considered as an alternate to the Panama Canal before the latter was finally decided on.

North of Lake Nicaragua and linked to it by the River Tipitapa is the smaller Lake Managua, beside which stands the Nicaraguan capital of the same name. The city of Managua, with more than 100,000 people, seems surprisingly new for a nation where history was being made more than 400 years ago. It became the national capital in 1858, to settle the long-standing rivalry between the old colonial cities of León and Granada. Its modern appearance results from the rebuilding of much of the city after the disastrous earthquake and fire of 1931.

Spaniards Baptized Native Chieftain Nicarao

Physically, Nicaragua falls into three sharply contrasted regions. The hot and rainy east coast has a broad margin of green plains, fringed with lagoons and Caribbean islets. This is the Mosquito Coast, named for the Misskito, or Mosquito, Indians, not the insect pest. These lowlands are Nicaragua's slice of Central American banana country. Chiefly foreign-owned and operated, the banana plantations yielded in 1940 more than a million stems.

West of the coastal lowlands rise the hills and mountains of the sparsely populated interior. No railways and few roads cross this region to join the two coasts, although a paved highway is under construction through the south. From the north and east central parts comes most of the gold that is the leading export. Matagalpa, with 40,000 people, is Nicaragua's third-largest city.

In the western third of the republic, in the region of lakes and volcanoes, live most of the nation's 1,300,000 people. History and nature help to account for the heavier settlement along the Pacific side. One factor has been the usefulness of the lakes as trade routes. Climate, too, is temperate and pleasant.

The route of Spanish discovery and conquest also led this way. Though Columbus skirted the Atlantic shores in 1502, Gil González de Ávila twenty years later pressed inland from the Pacific coast to explore and claim the country. The native chieftain Nicarao (from whom the country takes its name), whose gold-rich

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Southeast of the Japanese Mandate, still in Micronesia, lies Britain's Gilbert group—16 low barren atolls—ribbons of coral rock from 10 to 50 miles long. After Pearl Harbor, the Japanese seized the northern Gilberts and began converting Makin atoll into a well-equipped base from which to raid shipping lanes from Hawaii to Australia. The U. S. Navy has attacked the Makin base.

North of Micronesia, on the third and last leg of an imaginary "march to Tokyo," lies a stretch of coral-studded sea where volcanic islands come and go. Kazan Retto, a volcanic group, is only 800 miles from the Tokyo goal.

Today, from bases at Darwin and on Cape York, Australia's northern tips, and from Guadalcanal, Flying Fortresses can range 1,500 miles toward Tokyo. Thus they can strike Japanese bases anywhere in the Carolines, Marshalls, and Gilberts. Only Guam and the arc of Marianas to its north are beyond their range.

Note: See also in the *National Geographic Magazine*, "American Bombers Attacking from Australia," and "War Finds Its Way to Gilbert Islands," January, 1943; "A Woman's Experiences among Stone Age Solomon Islanders," December, 1942; "Unknown Japan," August, 1942; "Hidden Key to the Pacific," and "Treasure Islands of Australasia," June, 1942; and "Mysterious Micronesia," April, 1936*. *(Issues marked with an asterisk are included in a special list of Magazines available to teachers at 10¢ a copy, in groups of ten.)*

Bulletin No. 1, April 5, 1943.

"THIS WAY TO JAPAN" SAYS THE ISLAND ARROWHEAD OF THE SOUTH PACIFIC

The once-drowsy Pacific islands between Australia and Asia appear to form an arrowhead that comes to a point at the Marianas group, just south of Japan. Five nations share legal authority over this area. The Netherlands owns the Japanese-occupied Indies islands of the southwest, through the western half of New Guinea. Great Britain rules the southeastern and Australia the south-central islands. The Japanese mandated area in the north is flanked on east and west by islands on which the United States flag was replaced by the Japanese shortly after Pearl Harbor—Wake, Guam, and the Philippines.

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Upper Savoy, France's "Boiling-Over Battlefield" in the Alps

THE "Battle of the Alps" in southeastern France broke out when defiant Frenchmen, boiling over with wrath, fled to the mountains and formed guerrilla bands to resist conscription for slave-labor in Germany's war factories.

The hottest clashes came in the highest mountains, in Upper Savoy (Haute Savoie). Just south of Switzerland and Lake Geneva, this rugged department is dominated by towering Mont Blanc (illustration, next page) and its sister peaks.

The crags and crevasses which French guerrillas converted into fortresses had attracted crowds of visitors in peacetime to Upper Savoy, popular in both summer and winter. Aix-les-Bains, best known of the summer resorts, entertained 50,000 tourists in a season. Chamonix, oldest of the resorts, accommodated 7,000 guests in 30 hotels and additional native inns. The Olympic winter games were held there in 1924. In this area summer tennis courts often became skating rinks in winter, when the hotels were taken over by an army of skiers.

History Shows Guerrillas Helped by Mountain Grottoes and Gorges

The main railroad from Paris to Turin, Italy, crosses this mountain mass, where tunnels are numerous. Resorts are reached by short spur lines, by electric cars, rack-railways, or highways. Some of the mountain "roads" barely permit man and mule to walk abreast. But most of the spruce- and fir-forested, peak-shadowed area is miles from accepted travel routes. The ravine-gashed country offers guerrilla hideaways or transportation bottlenecks that invite sabotage.

Such a region does not lend itself readily to the mass movement of motorized troops. History has often shown how, in the man-to-man warfare of the mountains, advantage generally lies with natives who know their mountain trails.

In Greece, Yugoslavia, and the other Balkan countries the success of guerrilla resistance has been attributed largely to the mountain fastnesses and native knowledge of trails, grottoes, and gorges. The ancient Greeks were successfully holding at Thermopylae until quislings led the invading Persians over a pass previously unknown to the invaders, enabling them to surround the Greeks.

The ups and downs of France's Alpine scenic wilderness gradually drop southward from Mont Blanc's 15,782-foot altitude to Mediterranean Sea level. Bordering on Switzerland and Italy, this rugged section has been in the past the playground of the nation and its international visitors. Winter sports drew summer crowds to the mountains; to the south are the Riviera seaside winter resorts.

Snow Peaks and Orange Blossoms in Sight

The Maritime Alps crowd the French coast of the Mediterranean, where the Upper and Lower Corniche motor roads command glimpses of a winter panorama bordered with wild flowers and orange blossoms below, topped with a snowy skyline.

Northward, a few motor roads snake their way up steep inclines, passing mountain villages about a white chapel or a mill at a waterfall. Cows and chickens may share the homes in these high hamlets, where life contrasts sharply with the luxurious modernity of the coastal cities—Monte Carlo, Nice, or Cannes.

Two centuries ago, when two Englishmen, Pococke and Wyndham, undertook their Alpine explorations in this region, they were accompanied by armed guards who kept watch fires burning all night. The landscape is forbidding even to some

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people lived beside Lake Nicaragua, was won over and baptized by the Spaniards. In the district of the lakes were founded Granada and León; the latter is now the country's second-ranking city.

Today western Nicaragua, the political and social center of the republic, is also outstanding for farming, on which the national economy is based. Coffee, grown chiefly in uplands around the lakes, is the leading agricultural export. In 1940 it accounted for some 22 per cent of the total exports.

For the most part Nicaraguans are a mixture of Spanish and Indian stock, with a few of pure Spanish or Indian descent. On the Mosquito Coast are the Zambo and Mosquito Indians, plus Negroes from near-by Caribbean islands.

Nicaragua's potentially valuable natural resources include copper, lead, iron, mercury, silver, and precious stones; mahogany, cedar, and rosewood timber; and such forest products as gums and resins, medicinal plants, and wild rubber.

So far, this wealth of raw materials is but little developed, because of labor shortages and lack of transportation. The United States has been lending a helping hand, however. Projects are under way to improve health, sanitation, and transportation, as well as to increase the food supply.

Note: Nicaragua is shown on the National Geographic Society's Map of Mexico, Central America, and the West Indies. For additional information, see "An Army Engineer Explores Nicaragua," in the *National Geographic Magazine*, May, 1932*.

Bulletin No. 2, April 5, 1943.

Newell F. Johnstone

AN INDIAN GODDESS WITH HIGH HAIR-DO IS A PREHISTORIC GLAMOR GIRL

The Indians found in Chief Nicarao's realm around Lake Nicaragua by Spanish explorers de Ávila and de Córdoba were skilled miners and metal workers. De Ávila received from them 14,000 gold pieces and six gold images. Relics of their pre-Christian culture have been found in Lake Nicaragua on Zapatera Island, including burial urns, pottery, and stone sculptures of animals and human figures (above). Soldiers from the United States, like those photographed, have become familiar with Nicaragua, as the Marines were stationed there from 1912 until 1933, except for a two-year interval, and Army engineers have made surveys.

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Expelled from Schools, Sponges Enter War Work

IT'S AN all-out war for sponges, too, from now on. Whether to wipe the windshield of a jeep or sponge the soldier's wound on an operating table, the limited supply of these useful articles will work for Uncle Sam for the duration.

School life would have been affected by the sponge shortage a half century ago, when sponges daily cleaned millions of school slates. Wetting sponges was then "opening exercise" in every classroom, and every child knew the sponge belonged to the "animal kingdom." He also knew the superior quality of sheep's-wool sponges; he saw them piled up in wire racks in every drug store, or cleaning buggies in the local livery stable.

The Sponge an Unexplained Mystery to Roman Minds

Now the sponge, reminiscent of school days only to an older generation, is used in the arts and in medicine; in refrigeration, soundproofing, and other industries.

Ancient Greek scribes also had used sponges to erase their mistakes. They were used for the bath as long ago as Homer's day, and the armor of Achilles had a padded lining of sponge of fine texture. Aristotle wrote of several species of sponge.

Romans used sponges for cleaning but they knew less of their origin than the modern school boy. Pliny thought the sponge was neither plant nor animal but a mysterious combination of the two. It was some time before natural science, based on actual observation instead of philosophical guesses, revealed that the sponge is the picked-clean skeleton of a sea creature.

Sponge diving was an ancient Greek art. In the Aegean Sea Greek divers of the Dodecanese Islands still operate without diving suits. They are men of superb physique who can withstand sea pressure as much as 200 feet under the surface. They may stay down for five minutes, but are sometimes unconscious when hauled up.

Greek Priority on Sponge Diving Continued for Centuries

Greek divers in time expanded to various parts of the Mediterranean. Battle areas of Libia and Tunisia have written sponge history. Tripoli became a center for Greek divers whose sponges went mostly to England and France. Eventually this North African supply was threatened with exhaustion. The Biological Laboratory at the Tunisian port of Sfax began a study of the diseases and artificial propagation of sponges years ago.

Almost a century ago, turtle fishermen off Key West discovered the sponge wealth of the Gulf of Mexico, and soon afterward Greek divers were operating in these waters, even to the opposite shore of Yucatán.

Key West was America's first native sponge source, and in 1891 was yielding nine-tenths of the U. S. supply. Here the crop was limited largely to sponges reached by a "hooker" with a thirty-foot pole.

Tarpon Springs, halfway along Florida's west coast, became the sponge capital of the United States largely as a result of the Spanish-American War, when the sponge fleet, to avoid Spanish warships off Key West, began to favor the more northern harbor.

Greeks, wise in the ways of the Mediterranean, developed the great modern

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of the natives, many of Celtic origin. Their traditions have peopled the mountains with good or evil spirits; dragons bathe in the lakes; demons guard the treasure of the grottoes, and spectral figures flit about castle ruins.

Mountain-born rivers, the Rhône, Isère, Durance, and their tributaries follow deep old glacial beds or cut gorges that have thwarted road-builders.

Upper Savoy, in the populous north, has more moisture, more forests on the mountain sides, more farming in the valleys. Soil washed down by the melting snows of spring is laboriously carried back each year to rock terraces in sunny spots. It resembles a slice of Switzerland, with cattle grazing on the slopes. The southern part of the French Alps is drier and, for the most part, the mountains bear but a scrubby growth. Here the grazing animals are mainly sheep.

Farming is extensive and varied in the lower parallel valleys bordering this area to the west. Mountain streams here have been harnessed to power the industry of such industrial centers of Grenoble.

Note: France is shown on the National Geographic Society's Map of Europe and the Near East. See also, in the *National Geographic Magazine*, "Rehearsal at Dieppe," October, 1943; "France Farms as War Wages," February, 1940*; and "Lake Geneva: Cradle of Conferences," December, 1937.

Bulletin No. 3, April 5, 1943.

Ad Astra-Aëro

GUERRILLA GENERAL BLANC JOINS THE WAR AGAINST FRANCE'S ENEMIES

A bastion of strength for France's guerrilla warriors is the hulking pyramid of Mont Blanc which rises from a broad international base in Italy, Switzerland, and France to a 15,782-foot tip on the French side of the frontier. Its lower reaches, usually approached from Chamonix, are furrowed with gorges and forested ravines where guerrillas can take refuge. Its top, too lofty for vegetation, is barren windswept rock whose snowy valley troughs are filled with glaciers. There is no record that any human had scaled the peak before 1786 when a French doctor climbed it. Too high and cold for comfort, the top nevertheless could be a guiding landmark for airplanes dropping provisions and arms to guerrillas. This giant boundary post has served as frontier marker between France and Italy since 1870.

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Geo-Graphic Brevities

SMOLENSK A "KEY AND GATE" TO WESTERN RUSSIA

The story of Smolensk, on the U.S.S.R.'s western front, is a timely example of geography's influence in making and repeating history.

Brought swiftly into the news after the German invasion on June 22, 1941, the city fell to the Nazis on July 14. When the Russians recaptured Vyazma in their 1943 spring counterattack, Smolensk became target of their westward drive.

The city played a similar role on the pathway of Napoleon's invasion. There, more than 300 miles inside Russia's frontiers, he fought his first real engagement with the retreating Russians on August 6, 1812. Burned and abandoned by the Russians, Smolensk remained under martial French law until Napoleon and his panicky forces fled through in November on their way back to France. Though beginning his disastrous retreat from Moscow by a more southerly road, Bonaparte was forced by geography and the enemy to return through Smolensk.

Marshes to the north and south make communication lines between Moscow and the west naturally converge on Smolensk. The natural corridor of higher ground is outlined in part by two great rivers, the Dnepr (Dnieper) on the south and the Dvina on the north. At Smolensk the distance across the bottleneck between the two streams is about 60 miles.

The city, with some 156,000 inhabitants before the war, has been for a thousand years a dominant trading center on the great Russian plain between Moscow and Poland. Smolensk got its start as an important crossing on the upper Dnepr River for east-west land routes. During the Dark Ages it was a stopover on the river route from the Baltic regions to Constantinople. At the height of its trade, in the 16th century, it had an estimated 200,000 people.

Situated where the spheres of influence of medieval Lithuania, Poland, and Russia overlapped, this desirable Dnepr port became in turn the prize of war of all three, changing nationality four times between 1408 and 1654. It was on the path of early Norse conquest and pillage. It was a base of operations for Peter the Great against the 18th century Swedish invasion under Charles XII. It was fortified by Boris Godunov, the swashbuckling Tsar familiar to music lovers around the world through Moussorgsky's opera of the same name.

Smolensk for long had only small-scale industries such as milling the local timber, weaving woolens, smelting metals, and manufacturing textile machinery. Under the Soviet regime it has become the center of a regional linen industry, processing the long-fibered flax from a surrounding area that yields at times twice as much flax as all of non-Russian Europe. In addition to linen, the "combinat"—or group factory center—produced linseed oil, rope, and allied products.

A proud Smolensk tradition is its association with the composer Glinka, who used Russian folk themes and founded Russia's school of national music.

* * * * *

DATES FOR YANKS IN NORTH AFRICA? PLENTY IN TOZEUR!

Thin dates, fat dates, very sweet dates and some not so sweet, and an abundance of double dates are within easy range of American soldiers in western Tunisia. They need only journey southward to Tozeur. There is just one drawback. The new crop will not be ripe until October.

Tozeur, 300 miles southwest of Tunis, is the largest of four oases strung

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sponge fisheries off Florida's west coast. News of wages of $300 a month echoed through the Dodecanese Islands and lured hundreds to America. Greek divers made their first appearance at Tarpon Springs in 1905. Now the harvest brought into this port may be worth a million dollars a year. The sponges are auctioned at the cooperative Sponge Exchange there by written bids—the largest market in the world for this commodity.

The Greeks Boost Florida's Rank to First in Sponge Industry

In the shallow waters of the gulf sponges are still hooked with a long pole. For the deeper parts, however, the Greeks use diving suits. An area of nearly ten thousand square miles is covered with a fleet of 150 boats.

Florida tradition reports that the model for the sponge fleet craft was a boat brought over from Greece, copied with few changes.

Through the efforts of these fishermen, with their ages-old craft, Florida has risen to first place in world sponge production. Cuba ranks next. The Bahama Islands (illustration, below) ranked third before the sponge fisheries there were attacked by a blight in 1938.

To supplement Florida's crop, the United States imported large quantities of sponges before the war—in 1938, a half million dollar's worth. Most of the imports came from Cuba and the Bahamas, with small amounts from Greece, Egypt, and Tunisia.

Bulletin No. 4, April 5, 1943.

Sands

BAHAMA SPONGES ARE SHAMPOOED AND MANICURED BEFORE BEING BALED FOR EXPORT

When unhooked from its home rock under the sea, the sponge is not appealing, in odor or appearance. Its color ranges from dirty grayish yellow to black. It is exposed to the air and beaten with wooden bats to separate the gelatinous decaying animal tissues from the skeleton —a fibrous substance called spongin. The skeleton when cleaned becomes the yellow cleansing utensil now abandoning civil life. From this untidy heap of irregular-shaped sponges photographed at Nassau, natives produce the inviting bath sponge. Few sponges acquire naturally their pleasant curves; most must be trimmed into desirable commercial form. They are then sorted into palm fiber baskets by women in broadbrimmed palm fiber hats, then baled for shipment abroad. Bits of sponge trimmed off are used for soundproofing and refrigerator insulation. Since 1938 the Bahama sponge industry, once third in world rank, has been battling against extinction from a mysterious infection.

along the northwest margin of Chott Djerid, the shallow salt lake without outlet that dries in summer to a marsh. In this almost rainless section of southwest Tunisia a million palm trees bear over a hundred varieties of dates. The date palm grows "with its feet in the water and its head in the fire of the sky." Water available determines the extent of palm gardens. Tozeur has 194 springs normally supplying about 194 gallons of water per second (illustration, below).

To avoid the danger of malaria on the damp, low palm garden ground, the 30,000 people who live by date and other fruit industries of the Djerid oases build their homes on near-by sun-baked plateau land. The houses of Tozeur and Nefta are gloomy structures of mud-colored brick, in Mexican adobe style.

Native sharecroppers cultivate and harvest the fruit. Most of the crop is a hard dry date that keeps well in desert heat and is a staple food in North Africa. The other extreme is a soft syrupy date that must be eaten almost at once. Between is the degla, or Deglet Nur date—"the date of light," because light passes through it—firm and fine-flavored, the one Tunisian variety normally exported in quantity to Europe and America. Four-fifths of the date palms imported to the U. S. and now producing in the dry Imperial and Coachella Valleys of California are of the Deglet Nur variety.

The gardens of the Djerid oases are two-story affairs. Beneath the tall sun-seeking palms grow shaded fig trees, apricots, olives, and oranges. Grape vines cling to the palm trunks and melon plants spread over the ground. Wild flowers flourish in the deep-forest shade, especially the fragrant clusters of jasmine.

Bulletin No. 5, April 5, 1943.

Maynard Owen Williams

WHERE WATER IS WEALTH, TOZEUR'S TWO-STORY GARDENS GET LIQUID GOLD

The water of all the desert springs at Nefta and at Tozeur is gathered into one large stream which serves the housewives as laundry (left), and the rest of the family as bathtub (center), and the whole community as a drinking fountain. Water is delivered to homes in amphora-shaped pottery jugs in racks on donkey back. Then water is diverted through irrigation ditches into the gardens, with community guards watching jealously to see that each grower gets his share—no more, no less. Water is the desert's most precious property, to be guarded, bought, hoarded, borrowed at interest, and even stolen. A water thief is considered the lowest form of desert life. The Romans cultivated dates and other fruit at the Djerid oases, building the low dam or bar in the stream (above) which is still called the Roman Barrage.

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